WHAT IS CLAIMED IS:

1. A visual tracking method using color information comprising:

three-dimensional color modeling step (S100) in which images obtained under various illumination conditions are analyzed and thereby the photographing characteristics of the camera as to the target is represented by a three-dimensional model;

target recognition step (S200) in which judgement is made by the difference between the previous and the current images about whether or not a new target object appears, target region is located by applying the color model in said three-dimensional color modeling step (S100), and the final decision is made as to whether or not visual tracking is to be performed for the target depending on the shape analysis of the target region; and

the third step of visual tracking (S300) in which an arbitrary pixel is monitored and judged using said color model if it belongs to the target region and at the same time the judgement process has to be adaptable to the movement speed of the target by estimating the movement of the target region.

2. A visual tracking method using color information comprising:

three-dimensional color modeling step (S100) in which the color model is constituted by four quadratic functions

representing average and standard deviation of target hue and average and standard deviation of target saturation, and

said color model for the whole region is accomplished by dividing the whole region subject to image brightness changes into n regions with regular sizes and by approximating each region using a quadratic curve and making the four quadratic functions constitute a single Gaussian function;

target recognition step (S200) in which judgement is made by the difference between the previous and the current images about whether or not a new target object appears, target region is located by applying the color model in said three-dimensional color modeling step (S100), and the final decision is made as to whether or not visual tracking is to be performed for the target depending on the shape analysis of the target region; and

the third step of visual tracking (S300) in which an arbitrary pixel is monitored and judged using said color model if it belongs to the target region and at the same time the judgement process has to be adaptable to the movement speed of the target by estimating the movement of the target region.

3. A visual tracking method using color information of claim 2 wherein said three-dimensional color model in three-dimensional color modeling step (S100) is formulated by equational relationship of

$$H_m(i) - T_h \bullet H_\sigma(i) \le H_{3D}(i) \le H_m(i) + T_h \bullet H_\sigma(i) \text{ and}$$

$$S_m(i) - T_h \bullet S_\sigma(i) \le S_{3D}(i) \le S_m(i) + T_h \bullet S_\sigma(i),$$

where $H_m(i)$ for $0 \le i \le 255$ is the function of hue average, $H_\sigma(i)$ for $0 \le i \le 255$ is the function of hue standard deviation, $S_m(i)$ for $0 \le i \le 255$ is the function of saturation average, $S_\sigma(i)$ for $0 \le i \le 255$ is the function of saturation standard deviation, and $H_{3D}(i)$ for $0 \le i \le 255$ and $S_{3D}(i)$ for $0 \le i \le 255$ are the color model functions.

4. A visual tracking method using color information of claim 2 wherein the predicted acceleration in said visual tracking step (S300) is given by the equation of

$$P_m(i) = \frac{d\left(\frac{F_m(i-1)}{dt}\right)}{dt} \approx \frac{F_m(i-1) - 2 \bullet F_m(i-2) + F_m(i-3)}{\Delta t \bullet \Delta t},$$

where $P_m(i)$ is the predicted acceleration of the target region in the i-th image, $F_m(i)$ is the position of the target region in the i-th image, and Δt is the time increment between the i-th and (i-1)-th images.